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over the area of distribution of the median brachial and anti-brachial nerves of the author's left arm. A most thorough survey of this region by the methods and under the direction of Professor v. Frey shows that "in this area the sensations for warmth, cold, pressure and touch are absent." There is also a slight diminution in the number of pain spots. It is of especial interest to note that tickle is also absent from the affected region.

*A Comparative Study of the Point of Acute Vision in the Vertebrates.* J. R. SLONAKER. American Naturalist, Jan. 1st, 1896. Pp. 24-32, 4 Figs. in text.

A first step in any adequate comparative psychology must be a knowledge of animal sense organs. This has been secured recently by Tuckerman for organs of taste in vertebrates, but the discovery of sense organs so closely resembling taste buds by Langdon over the surface of the earth-worm must open up the subject again, and bring the realization that a wide region of terra incognita as to these structures exists in the invertebrates, and the recent investigations of Retzius renders it clear that to search the tongue and mouth cavity is not sufficient even for the vertebrates. The great work of Retzius stands as a classic for the ear and the most fruitful physiological studies have followed it. With the eye our knowledge has remained deficient, touching exactly the area of clearest vision, and this is just the point which should give us our first generalization, from what we know of human vision, as to the character of vision in the lower animals.

Mr. Slonaker's complete paper, soon to be published, of which the above is a partial abstract, gives the results of his examination of ninety-three different species, of which eighteen are mammals, forty-one birds, six reptiles, three amphibians and twenty-five fishes. In addition to the forms actually examined, the author has sifted the literature to date, and presents his results with those of other observers in convenient tabular form. The table gives species of animal, character of area and fovea and name of observer. Following this long table is a condensed statement, which will serve to give at a glance a notion of what part of the field has been covered.

NO. OF SPECIES.	Number Areas Found.	Number Foveas Found.	AREA.			FOVEA.		
			One Circular.	Two Circular.	Band-like.	One Simple.	Two Simple.	Trough-like.
48 Mammals	10	38	28		8	15		
102 Birds	0	1	59	11	36	72	11	22
25 Reptiles	3 ?	17	20		3	6		2
13 Amphibians	3	11	3		7	2		
30 Fishes	10	25	20			5		

From the above we see that in mammals possession of a visual area of band-like or circular form is the rule. A farther differentiation

to a fovea occurs only in the primates. Birds are provided generally with a circular area with a foveal pit developed in its centre. As birds' eyes are placed laterally and the fovea is in the optical axis, it can serve only for monocular vision. A considerable number of birds, however, possess much more complicated mechanisms for clear vision. Besides the central area and fovea, many birds, notably, swallows, terns, hawks and others, are provided with two foveas, situated in their corresponding areas, one central for monocular vision, and one situated, in species having a lateral position of the eyes, as the swallow, close to the ora serrata on the temporal side. This arrangement probably renders parallel binocular vision possible with the eyes at rest, and in convergence gives the bird a binocular view of near objects. It is further shown that as the eyes approach the frontal position, as seen in the hawks, the temporal fovea comes to be placed relatively near the central, and when the frontal position is practically attained, as in the owl, we find a single central fovea serving for both binocular and monocular vision, as in man and the primates.

Following the tables the author gives a brief statement concerning each species examined, beginning with the mammals and going down the vertebrate series. In some cases his results differ from other observers, a notable case of difference occurring with reference to the "trough-like" fovea described and figured by Chevitz for several birds. Slonaker finds a dark line passing through the centre of certain band-like areas, giving somewhat the appearance of a trough in surface views. Sections across the area, however, in every instance reveal no trace of a depression. He is, therefore, warranted in questioning, for the present, the existence of a trough-like foveal depression.

The closing portion of the article is devoted to an outline on the physiological side of the character of vision as correlated with the retinal mechanism possessed by the animal. The writer's anatomical studies up to this point have led up to this subject, but have not afforded time as yet for its adequate investigation. The main generalization as to the character of foveal and retinal vision is borne out, viz., that for the perception of objects in motion an undifferentiated retina or slightly differentiated area is sufficient, and that when an animal's life comes to depend upon its ability to see clearly motionless objects, a fovea is developed.

C. F. H.

*Die Alkoholfrage und ihre Bedeutung für Volkswohl und Volksgesundheit.* Eine sozial-medizinische Studie für Aerzte und gebildete Laien. Von DR. AUGUST SMITH. Tübingen, 1895, pp. iv, 127; plates, 7.

As a result of a series of experiments suggested by Professor Kraepelin to test the influence of alcohol upon psychical processes, Dr. Smith, by administering forty to eighty grammes of alcohol daily in small doses, obtained in his subjects a gradual decrease in ability to add, amounting in twelve days to about twenty per cent., while for memorizing, a final diminution of about seventy per cent. was observed after the same time. Cessation of the use of alcohol was accompanied by the immediate return to the normal, followed by an evidence of improvement due to practice. The return to alcohol after seven days gave an immediate and marked decrease.

In another research, associations were recorded and arranged according to Wundt's classification as inner, outer and "*sinnlich zusammenhanglose*." The charted results show a marked percent-